

1 【What is claimed is:】

2 1. A transmission and reception system for data
3 broadcast, including a transmission apparatus which
4 transmits a data broadcasting content and a receiving
5 apparatus which receives and presents the transmitted data
6 broadcasting content,

7 the transmission apparatus comprising:

8 a presentation schedule time obtaining means for
9 obtaining a presentation schedule time when the data
10 broadcasting content is to be presented,

11 a data broadcasting content transmission means for
12 starting to transmit the data broadcasting content before
13 the presentation schedule time, and

14 a message transmission means for transmitting a
15 presentation start instruction message at the presentation
16 schedule time; and

17 the receiving apparatus comprising:

18 a data broadcasting contents reception and
19 presentation means for receiving the transmitted data
20 broadcasting content and invisibly presenting the data
21 broadcasting content, the invisible presentation of the
22 data broadcasting content meaning a state where a series
23 of processes relating to the presentation prior to a
24 process by which the data broadcasting content becomes
25 visible are performed, and the broadcasting content still
26 remains invisible, and

27 a data broadcasting contents visualization means for

28 visualizing the invisibly presented data broadcasting
29 content, when the transmitted presentation start
30 instruction message is received.

1 2. The transmission and reception system for data
2 broadcast of Claim 1, wherein

3 the message transmission means transmits an
4 invisible presentation instruction message when the data
5 broadcasting contents transmission means starts to
6 transmit the data broadcasting content, and

7 the data broadcasting contents reception and
8 presentation means starts to receive the transmitted data
9 broadcasting content when the transmitted invisible
10 presentation instruction message is received, and
11 invisibly presents the data broadcasting content when the
12 reception of the data broadcasting content has been
13 completed.

1 3. The transmission and reception system for data
2 broadcast of Claim 2, wherein

3 the data broadcasting contents transmission means
4 starts to transmit a preceding data broadcasting content
5 prior to the data broadcasting content,

6 the preceding data broadcasting content includes
7 first control information including an instruction which
8 instructs the receiving apparatus to, when the invisible
9 presentation instruction message is received, receive the

10 data broadcasting content and designate the data
11 broadcasting content as an object for presentation,

12 the data broadcasting content includes image
13 structure information and second control information, the
14 second information including

15 (a) an instruction which instructs the receiving
16 apparatus to, when the data broadcasting content
17 becomes the object for presentation, form an
18 image according to the image structure
19 information and keep the image being in an
20 invisible state, and

21 (b) an instruction which instructs the receiving
22 apparatus to, when the presentation start
23 instruction message is received, change the
24 invisible state of the image into a visible
25 state,

26 the data broadcasting contents reception and
27 presentation means receives the preceding data
28 broadcasting content, waits until the invisible
29 presentation instruction message in accordance with the
30 first control information is received, starts to receive
31 the transmitted data broadcasting content when the
32 invisible presentation instruction message is received,
33 designates the data broadcasting content as the object for
34 presentation when the reception of the data broadcasting
35 content has been completed, forms the image in accordance
36 with the second control information in the data

37 broadcasting content as the object for presentation,
38 brings the image to an invisible state, and waits for the
39 presentation start instruction message, and
40 the data broadcasting contents visualization means
41 changes the invisible state of the image into a visible
42 state.

1 4. The transmission and reception system for data
2 broadcast of Claim 3, wherein
3 the data broadcasting contents reception and
4 presentation means performs processes required by the time
5 when the image has been stored in a frame memory in
6 accordance with the image structure information, which is
7 realized by prohibiting signals based on the image in the
8 frame memory from being outputted to a display apparatus
9 connected to the receiving apparatus, relating to the
10 invisible presentation of the data broadcasting content,
11 and
12 the data broadcasting contents visualization means
13 visualizes the data broadcasting content by allowing the
14 signals based on the image in the frame memory to be
15 outputted to the display apparatus connected to the
16 receiving apparatus.

1 5. The transmission and reception apparatus for data
2 broadcast of Claim 4, wherein
3 the preceding data broadcasting content further

4 includes preceding image structure information to form an
5 image as an object for presentation,

6 the instruction in the first control information
7 instructs, when the invisible presentation instruction
8 message is received, to bring the visibly presented image
9 to an invisible state, then start to receive the data
10 broadcasting content, and designate the data broadcasting
11 content as an object for presentation, and

12 the data broadcasting contents reception and
13 presentation means visibly presents the image in
14 accordance with the preceding image structure information
15 after the preceding data broadcasting content is received,
16 and, when the invisible presentation instruction message
17 is received, brings the presented image in accordance with
18 the preceding image structure information to an invisible
19 state, and starts to receive the data broadcasting content.

1 6. The transmission and reception system for data
2 broadcast of Claim 4, wherein

3 the preceding data broadcasting content further
4 includes preceding image structure information in order
5 to form an image as an object for presentation,

6 the data broadcasting contents reception and
7 presentation means

8 (a) includes a memory which has a space where the data
9 broadcasting content and the preceding data
10 broadcasting content can be stored at the same

11 time,
12 (b) receives the preceding data broadcasting content
13 and stores the content in the memory, and then
14 visibly presents the image in accordance with the
15 preceding image structure information, and
16 (c) when the invisible presentation instruction
17 message is received, starts to receive the data
18 broadcasting content and store the content in the
19 memory, and, when the storage of the content in the
20 memory has been completed, erases the image
21 presented in accordance with the preceding image
22 structure information.

1 7. The transmission and reception system for data
2 broadcast of Claim 3, wherein

3 the data broadcasting contents transmission means
4 further multiplexes video stream data, in which (a) visual
5 data making up a first broadcast program whose content
6 relates to the preceding data broadcasting content and (b)
7 visual data making up a second broadcast program whose
8 content relates to the data broadcasting content are
9 continuously constructed, with the preceding data
10 broadcasting content and the data broadcasting content,
11 and transmits the multiplexed data,

12 the presentation schedule time is determined in
13 advance so as to be concurrent with the time when the
14 receiving apparatus is due to start to present the visual

15 data making up the second broadcast program in the video
16 stream data, and

17 the data broadcasting contents reception and
18 presentation means further receives the transmitted video
19 stream data and presents the broadcast program made up of
20 each of the video stream data.

1 8. The transmission and reception system for data
2 broadcast of Claim 3, wherein

3 the data broadcasting contents transmission means
4 repeatedly transmits each of the preceding data
5 broadcasting content and the data broadcasting content.

1 9. The transmission and reception system for data
2 broadcast of Claim 2, wherein

3 the data broadcasting contents transmission means
4 further multiplexes video stream data consisting of visual
5 data making up a broadcast program whose content relates
6 to the data broadcasting content with the data broadcasting
7 content, and transmits the multiplexed data,

8 the presentation schedule time is determined in
9 advance so as to be concurrent with the time when the
10 receiving apparatus is due to start to present the visual
11 data making up the broadcast program in the video stream
12 data, and

13 the data broadcasting contents reception and
14 presentation means further receives the transmitted video

15 stream data and presents the broadcast program made up of
16 each of the video stream data.

1 10. The transmission and reception system for data
2 broadcast of Claim 1, wherein

3 the data broadcasting content includes an image
4 structure information in order to form an image as an object
5 for display,

6 the data broadcasting contents reception and
7 presentation means performs processes required by the time
8 when the image has been stored in a frame memory in
9 accordance with the image structure information, which is
10 realized by prohibiting signals based on the image in the
11 frame memory from being outputted to a display apparatus
12 connected to the receiving apparatus, relating to the
13 invisible presentation of the data broadcasting content,
14 and

15 the data broadcasting content visualization means
16 visualizes the data broadcasting content by allowing the
17 signals based on the image in the frame memory to be
18 outputted to the display apparatus connected to the
19 receiving apparatus.

1 11. The transmission and reception system for data
2 broadcast of Claim 1,

3 the data broadcast contents reception and
4 presentation means waits for a predetermined time as its

5 opportunity, starts to receive the transmitted data
6 broadcasting content at the time, and, when the reception
7 of the content has been completed, invisibly presents the
8 data broadcasting content.

1 12. The transmission and reception system for data
2 broadcast of Claim 1, wherein

3 the data broadcasting contents reception and
4 presentation means, when an initial state of transmission
5 of the data broadcasting content is detected, starts to
6 receive the transmitted data broadcasting content, and,
7 when the reception of the content has been completed,
8 invisibly presents the data broadcasting content.

1 13. A transmission and reception method for data broadcast
2 used in a system including a transmission apparatus which
3 transmits a data broadcasting content and a receiving
4 apparatus which receives and presents the transmitted data
5 broadcasting content comprising:

6 a presentation schedule time obtaining step for
7 obtaining a presentation schedule time when the data
8 broadcasting content is to be presented;

9 a data broadcasting contents transmission step for
10 starting to transmit the data broadcasting content before
11 the presentation schedule time by the transmission
12 apparatus;

13 a message transmission step for transmitting a

14 presentation start instruction message at the presentation
15 schedule time by the transmission apparatus;
16 a data broadcasting contents reception and
17 presentation step for receiving the transmitted data
18 broadcasting content and invisibly presenting the data
19 broadcasting content by the receiving apparatus, the
20 invisible presentation of the data broadcasting content
21 meaning a state where a series of processes relating to
22 the presentation prior to a process by which the data
23 broadcasting content becomes visible are performed, and
24 the broadcasting content still remains invisible; and
25 a data broadcasting contents visualization step for,
26 visualizing the invisibly presented data broadcasting
27 content by the receiving apparatus, when the transmitted
28 presentation start instruction message is received.

1 14. A transmission apparatus which transmits a data
2 broadcasting content to a receiving apparatus which
3 receives and presents the data broadcasting content,
4 comprising:
5 a presentation schedule time obtaining means for
6 obtaining a presentation schedule time when the data
7 broadcasting content is to be presented;
8 a data broadcasting contents transmission means for
9 (a) starting to transmit a preceding data
10 broadcasting content including first control
11 information including an instruction which instructs

12 the receiving apparatus to, when an invisible
13 presentation instruction message is received, start
14 to receive the data broadcasting content and
15 designate the data broadcasting content as an object
16 for presentation,
17 (b) after the start of transmission of the preceding
18 data broadcasting content, and before the
19 presentation schedule time,
20 starting to transmit the data broadcasting content
21 including image structure information in order to an
22 image as an object for presentation and second
23 control information,
24 the second control information includes
25 (a) an instruction which instructs the receiving
26 apparatus to, when the data broadcasting content
27 becomes the object for interpretation, form the image
28 according to the image structure information and keep
29 the image being in an invisible state, and
30 (b) an instruction which instructs the receiving
31 apparatus to, when the presentation start
32 instruction message is received, change the
33 invisible state of the image into a visible state;
34 and
35 a message transmission means for
36 (a) transmitting the invisible presentation
37 instruction message when the data broadcasting
38 contents transmission means starts to transmit the

39 data broadcasting content,
40 (b) transmitting the presentation start instruction
41 message at the presentation schedule time.

1 15. The transmission apparatus of Claim 14, wherein
2 the data broadcasting contents transmission means
3 further multiplexes video stream data, in which visual data
4 making up a first broadcast program whose content relates
5 to the preceding data broadcasting content and visual data
6 making up a second broadcast program whose content relates
7 to the data broadcasting content are continuously
8 constructed, with the preceding data broadcasting content
9 and the data broadcasting content, and transmits the
10 multiplexed data,

11 the presentation schedule time is determined in
12 advance so as to be concurrent with the time when the
13 receiving apparatus is due to start to present the visual
14 data making up the second broadcast program in the video
15 stream data.

1 16. The transmission apparatus of Claim 15, wherein
2 the data broadcasting content transmission means
3 repeatedly transmits each of the preceding data
4 broadcasting content and the data broadcasting content.

1 17. A control program for enabling a transmission
2 apparatus to perform a content transmission process in

3 which the transmission apparatus transmits a data
4 broadcasting content to a receiving apparatus which
5 receives and presents the data broadcasting content,
6 the content transmission process comprising:
7 a presentation schedule time obtaining step for
8 obtaining a presentation schedule time when the data
9 broadcasting content is to be presented;
10 a data broadcasting content transmission step for
11 (a) starting to transmit a preceding data
12 broadcasting content including first control
13 information including an instruction which instructs
14 the receiving apparatus to, when an invisible
15 presentation instruction message is received, start
16 to receive the data broadcasting content and
17 designate the data broadcasting content as an object
18 for presentation,
19 (b) after the start of transmission of the preceding
20 data broadcasting content, and before the
21 presentation schedule time,
22 starting to transmit the data broadcasting content
23 including image structure information in order to an
24 image as an object for presentation and second
25 control information,
26 the second control information includes
27 (a) an instruction which instructs the receiving
28 apparatus to, when the data broadcasting content
29 becomes the object for interpretation, form the image

30 according to the image structure information and keep
31 the image in an invisible state, and
32 (b) an instruction which instructs the receiving
33 apparatus to, when the presentation start
34 instruction message is received, change the
35 invisible state of the image into a visible state;
36 and
37 a message transmission step for
38 (a) transmitting the invisible presentation
39 instruction message when the data broadcasting
40 contents transmission means starts to transmit the
41 data broadcasting content,
42 (b) transmitting the presentation start instruction
43 message at the presentation schedule time.

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